GANZ 1CH H.264 Encoder

ZN-S100V
ZN-S1000VE

HARDWARE Manual

Table of Contents

GANZ

1. Introduction

ZN-S100V and ZN-S1000VE are encoder module. ZN-S100V/ZN-S1000VE compress video/audio data and transmit the compressed video/audio data through the network in real time. ZN-S100V/ZN-S1000VE provides a high quality video image with a limited bandwidth and storage capacity. ZN-S100V/ZN-S1000VE also supports dual stream mode, and is equipped with built-in VCA (Video Content Analysis) feature. These products are ideally suited for a wide range of surveillance and remote monitoring applications. Main features are highlighted below.

Main features
• High Quality Compression in real time streaming
• H.264, MPEG-4, and MJPEG encoding at D1 in real time

Network
• RTP/RTSP and unicast/multicast are supported.

Streaming
•Dual streaming mode such as different codec/resolution/bit rate and so on.
•De-interlacing on DSP.

Video/Audio
• Loop-out video for external monitors
• Burnt-In text is supported
• ZN-S1000VE supports two ways audio. (ZN-S100V is not available.)

Additional Features
• RS-485/422 serial port for Pan/Tilt/Zoom. (Except ZN-S100V)
• RS-232C serial port for some devices like a POS terminal. (Except ZN-S100V)
• Motion detection by hardware.
• On Screen Display (OSD) by hardware.
• POE(Power Over Ethernet) is supported. (Optional)

VCA
• VCA Presence (Included as Standard)
• VCA Surveillance (Optional)

SDK
• Two types (RTSP and HTTP-API) are provided for application development.

2. Product Description

2.1. Function specification

ZN-S100V/ZN-S1000VE series specification is shown as following Table.

ZN-S100V/ZN-S1000VE series

Item		ZN-S100V	ZN-S1000VE
Video	Number of Streams	Dual Stream, Configurable	
	Input channel	1ch	
	Output Channel	1 Loop Out	
	Compression	H.264, MPEG-4, MJPEG Selectable per Stream	
	Resolution	D1, 4CIF, CIF, QCIF, VGA, QVGA	
	Compression FPS	25/30fps@D1 (PAL/NTSC)	
Audio	Input / Output	Not available	1/1ch
	Data Format	Not available	PCM & G.711
Network		10/100 Base-T	
DI/DO		Not available	2/2
RS-232C		Not available	Support
RS-485		Not available	Support
De-interlacing		Support (Hardware Encoding Engine)	
Motion Detection		Support (DSP)	
OSD		Support (DSP)	
Protocols		SNTP, DHCP, UDP, TCP, RTP, RTSP(unicast,multicast)	
External Storage		Not available	USB 2.0 & SD Memory card slot ※ SD Card is not included
Power Source		12V DC (DC Jack)	12V DC (DC Jack)
Power over Ethernet		Support - IEEE 802.3af (Optional)	
Operating Temperature		0 °C ~ 50 °C (32°F ~ 122 °F)	
Operating Humidity		Up to 85% RH (Non-condensing)	
Dimension		74.6(W) x 26.3(H) x 106.6(D) mm	103.4(W) x 37.7(H) x 141.4(D) mm
Weight		TBD	TBD

VCA (Video Content Analysis)

VCA Presence (Included as Standard)	
High Performance	Advanced Tracking Algorithm, Low False Alarm Rate
Easy to Use	Intuitive Web Browser Interface
Detection Zones	Multi-segment Polygons and Lines

On-screen Display	Real-time Display of Tracking Data and Events
VCA Surveillance (Optional)	
Detection Behavior	Direction, Stopping, Loitering, Entering, Exiting, Appear, and Disappear Filters
3D Behavior	Perspective Corrected Size and Speed Filters
Statistics	Counting Functions and Other Statistics
Meta Data	Binary XML Format
Image Stabilization (Optional)	
Electronic Stabilization	Removes Camera Sway

GANZ

3. Installation & Configuration

3.1. Package contents

The Package contains the following. Please make sure all listed items are included in the box.

ZN-S100V or ZN-S1000VE --- 1
LAN Cable (Cross type 1m) -- 1
9port Terminal block plug (except ZN-S100V) -------------------------2
DC 12V Power Adapter--1
AC100~AC240V power cable-- 1
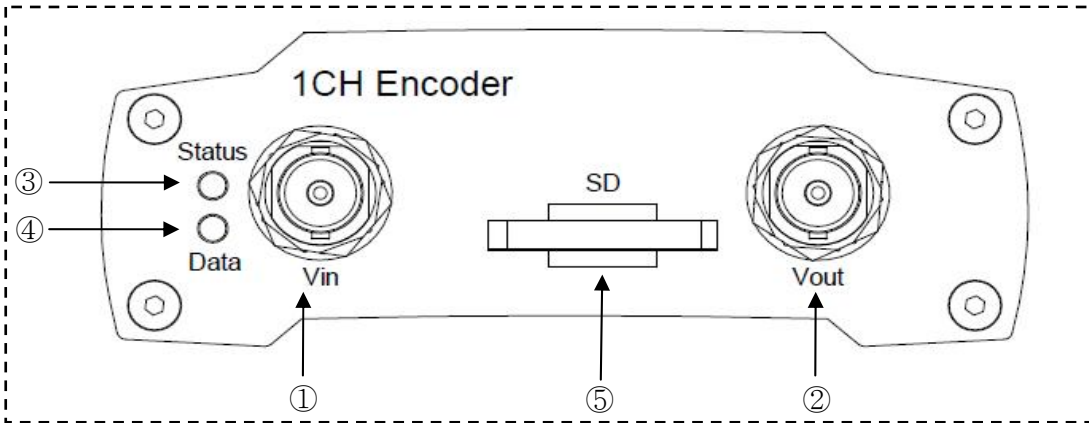
3.2. Components

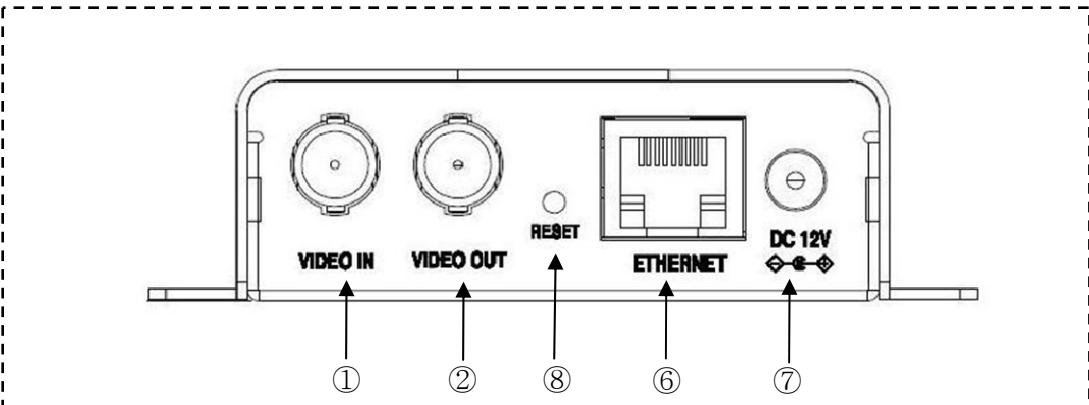## 3.2.1. Front Panel

Figure 1. Front Panel of ZN-S1000VE

Figure 2. Front Panel of ZN-S100V

① **Video Input BNC Connector (Vin 1)**
It is mainly used for video inputs.

② **Video Output BNC Connector**
This connector is used for loop-out of video input.

③, ④ **Indicator LED (Status, Data)**
Status and Data indicators display the following system information. Status LED has a yellow, a green and an orange color. Data LED has a red, a green and a dark orange color.

1. Power off

Item	Status	Data
Power OFF	OFF	OFF

GANZ

2. System initialization

Item	Status	Data
In Process	Off	Blinking Dark Orange
Normal State	Orange	Off
Abnormal State	Orange	Dark Orange

3. Kernel booting up

Item	Status	Data
In Process	Orange	Green
Normal State	Orange	Off
Abnormal State	Orange	Green

4. Video streaming service

Item	Status	Data
Normal	Blinking Green	Off
Abnormal	Green	Off

5. DSP operation status

Item	Status	Data
Normal	Orange blinks at every 1 second	Off
High Overload	Orange blinks at every 1 second	Red

⑤ **SD Memory Slot**
It is a memory card slot for external storage.
⑥ **LAN Connector (Ethernet)**
It is a RJ45 LAN connector for 10/100 Base-T Ethernet. This socket can also be used to power the ZN-S100V/ZN-S1000VE via PoE (Optional).
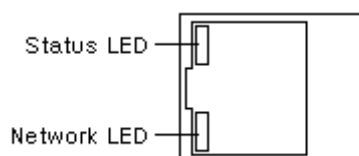
Figure 3. RJ45 LAN connector

⑦ **Power Adaptor Connector (DC 12V)**
ZN-S100V needs a DC 12V 1A adapter for power supply.

Figure 4. Power Connection

⑧ **Reset Switch (Reset)**

Reset switch is used for restarting ZN-S100V/ZN-S1000VE or resetting ZN-S100V/ZN-S1000VE as Factory Default (FD). Refer to '4.1. Factory Default Settings' for detailed procedures.
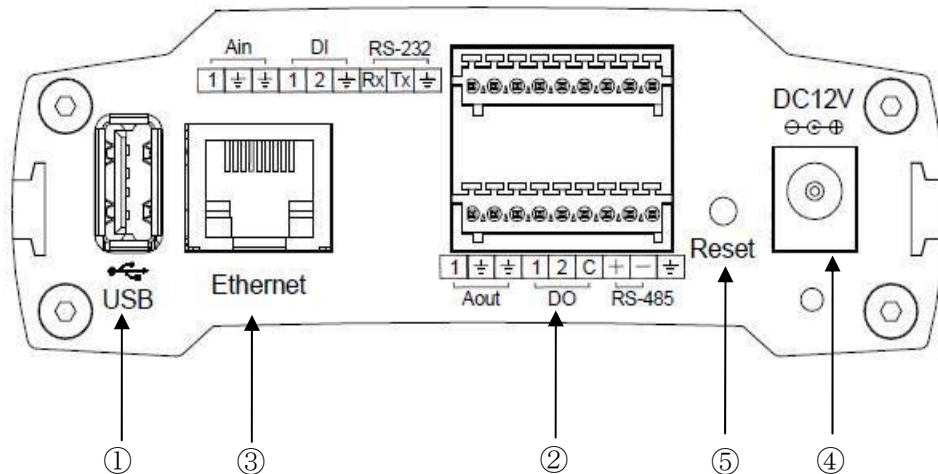
3.2.2. Rear Panel

Figure 5. Rear Panel of ZN-S1000VE

① **USB Port**

ZN-S1000VE provides one USB port which can connect to the USB device as an external storage device. It can be connected to multiple USB devices using USB HUB.

② **Terminal for a audio output/input, an alarm, a sensor and serial devices**
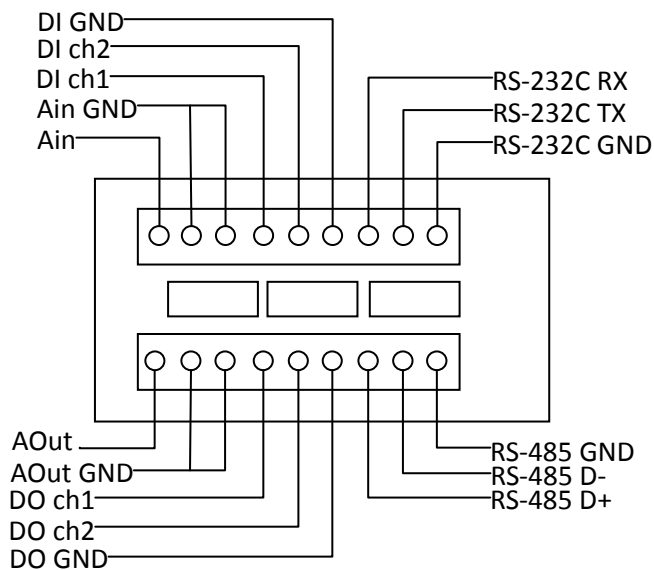
(Except ZN-S100V)

Figure 6. Terminal block

1. Audio Input
ZN-S1000VE has one channel mono audio input.

2. Audio Output
ZN-S1000VE has one channel mono audio output. As the output power for the audio is low, amplifier speaker is needed (Do not use a headphone or earphone directly to the camera).

3. Digital Input (DI1, DI2)
ZN-S1000VE supports two digital inputs. It can be connected either voltage type sensor or relay type sensor as following Figure 7. and Figure 8.

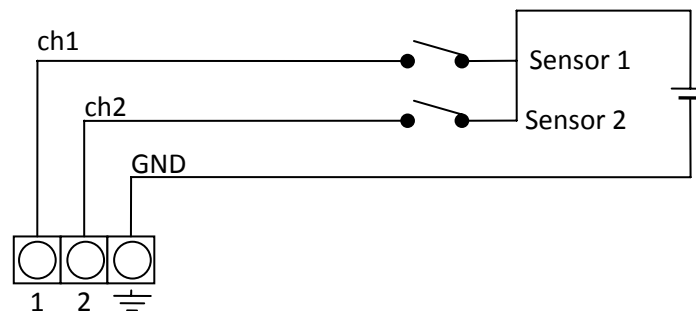| ⚠ CAUTION	Do not use voltage and relay type sensor together.
⚠ CAUTION	Please pay attention to electric characteristics during installation. (Detailed instructions are being prepared.)

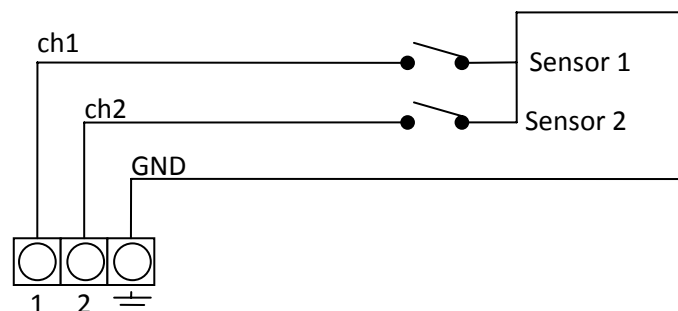Figure 7. Voltage Type Digital Input Connection

Figure 8. Relay Type Digital Input Connection

4. Digital Output (DO1, DO2)
DO devices can be connected as following Figure 9.

Please pay attention to electric characteristics during installation.
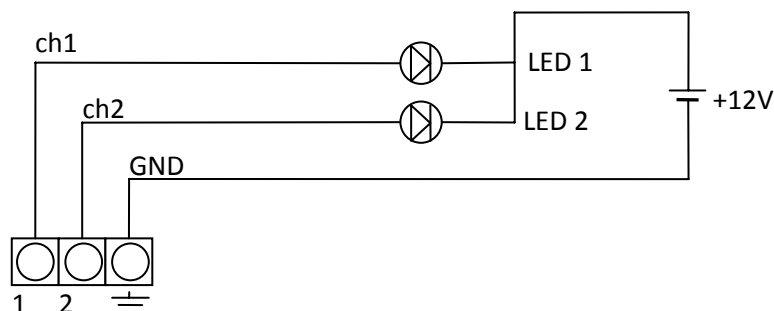(Detailed instructions are being prepared.)

Figure 9. Digital Output Connection

5. RS-485
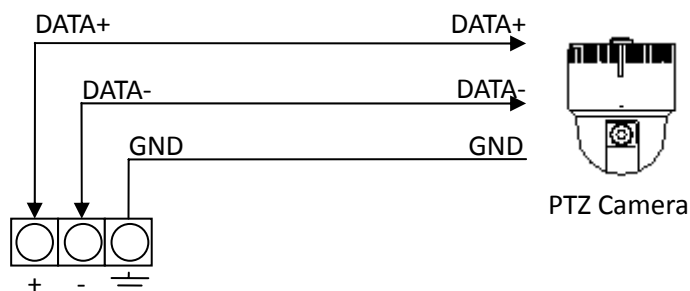The RS-485 serial port consists of DATA+, DATA- and GND as following Figure 10.

PTZ Camera

Figure 10. RS-485 Connection

6. RS-232C
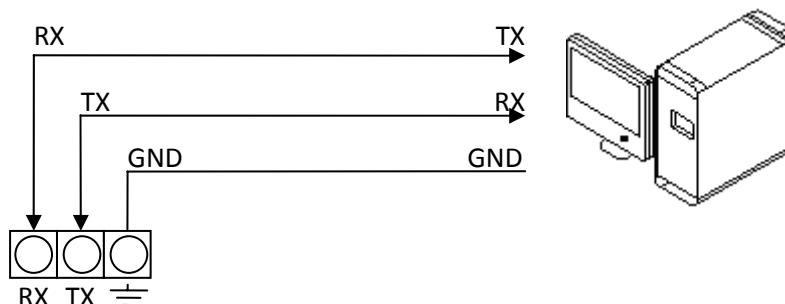RS-232C Terminal Block is used for some devices such as POS terminal block.

Figure 11. RS-232C Connection

③ LAN Connector (Ethernet)
This is a RJ45 LAN connector for 10/100 Base-T Ethernet. This socket can also be used to power the ZN-S100V/ZN-S1000VE via PoE (Optional).

④ **Power Adaptor Connector (DC 12V)**

ZN-S1000VE needs a DC 12V 1A adapter for power supply.

Figure 12. Power Connection

⑤ **Reset Switch (Reset)**

Reset switch is used for restarting ZN-S100V/ZN-S1000VE or resetting ZN-S100V/ZN-S1000VE as Factory Default (FD). Refer to '4.1. Factory Default Settings' for detailed procedures.

3.3. Basic Connection

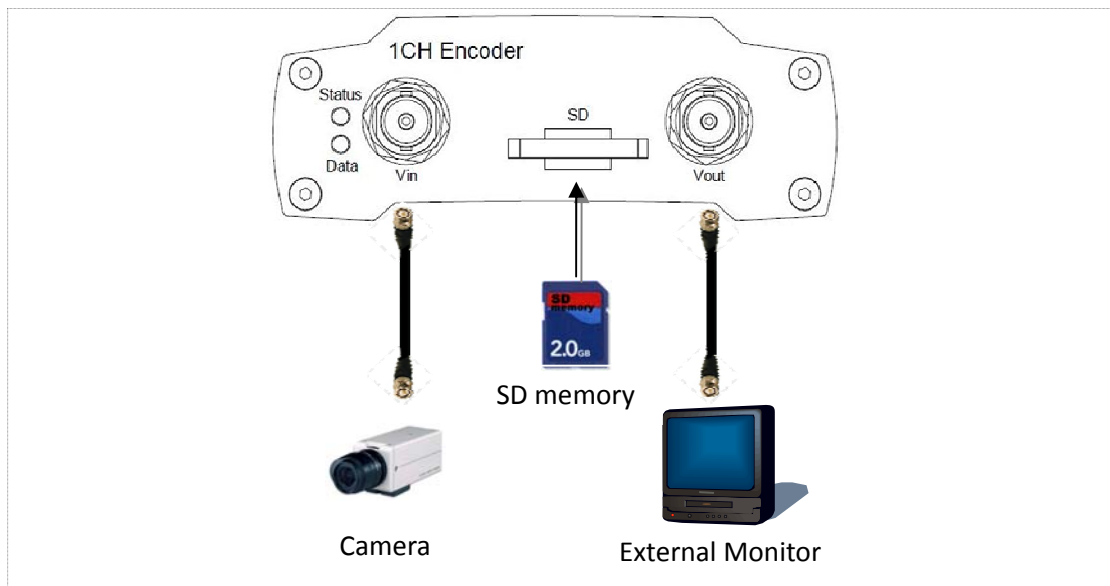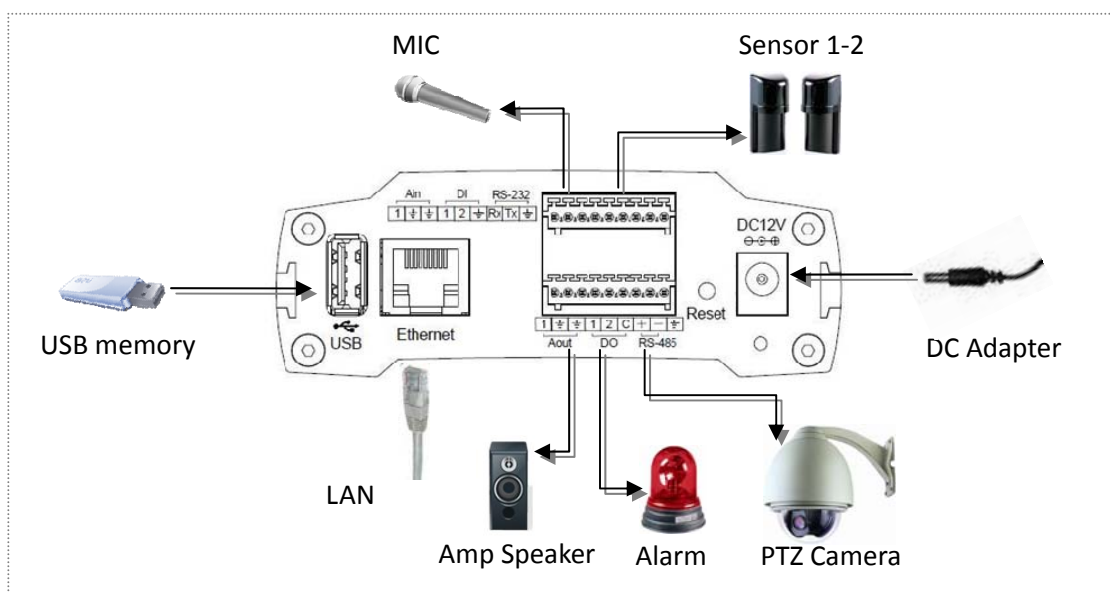Figure 13. ZN-S1000VE's Front Panel Connection

Figure 14. ZN-S1000VE's Rear Panel Connection

⚠ **CAUTION**

Normal operation may not be possible if temperature or humidity exceed levels recommended in the ZN-S100V/ZN-S1000VE specification.

3.4. Serial Number / MAC Address

Serial number and MAC address is attached on the bottom as shown in Figure 15.

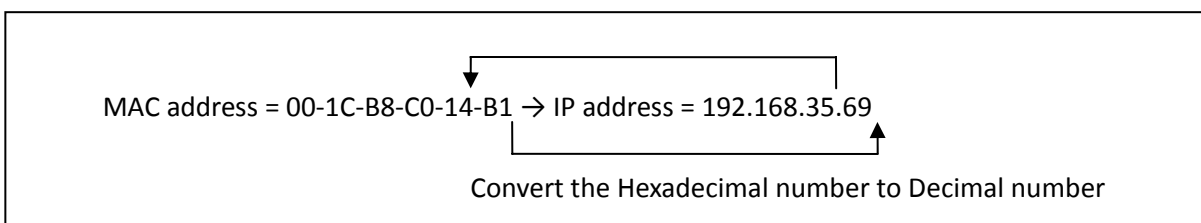Figure 15. Serial Number/ MAC Address

4. Operation Description

4.1. Factory Default Settings

Factory default settings are as follows:
- IP address: 192.168.xx.yy (Refer to 2.3 Serial Number / MAC Address)
- Mask: 255.255.0.0
- Gateway: 192.168.0.1
- User ID: root
- Password: pass

MAC address = 00-1C-B8-C0-14-B1 → IP address = 192.168.35.69

Convert the Hexadecimal number to Decimal number

To perform the FD (Factory Default) initialization:

ZN-S1000VE
Refer to 'Figure 1.'
1. Turn off the power.
2. Press and hold the Reset button
3. Turn on the power.
4. Release the Reset button when the Status LED's color is orange and the Data LED's color is red.
5. Wait for the system to reboot.

ZN-S100V
Refer to 'Figure 2.' and 'Figure 3.'
1. Turn on the power (The Status LED is on).
2. Press and hold the Reset button within 1 second.
3. Release the Reset button after 3 seconds.
4. Wait for the system to reboot.

4.2. Rebooting

To reboot the system:

ZN-S1000VE
Refer to 'Figure 1'

1. Press Reset.
   The red Data LED will blink several times. When Reset function is activated, the red Data LED will turn on. User may stop pressing Reset at this point.
2. When "Reset" function has been completed,
   the green Data LED will turn on and Status LED and Data LED will blink together.

ZN-S100V
Refer to 'Figure 2' and 'Figure 3'
   1.While the camera is in use, press and hold the Reset button.
   (Both the Status and Network LEDs are on.)
   2.Release the Reset button after 3 seconds.

5. Power over Ethernet (PoE)

The PoE module used in ZN-S100V/ZN-S1000VE is commercially available module without modification. The standard ZN-S100V/ZN-S1000VE does not include PoE module in it. PoE module is included on the request of a customer. For the detailed information, please contact sales person.

5.1. PoE compatibility

With non Power Sourcing Equipment (PSE)
When it is connected with non PSE, the power adaptor should be connected.

With power adaptor
Connecting both PSE and power adaptor does not do any harm to the products. Disconnecting power adaptor while it is operating does not stop operation. The product continues to work without rebooting.

5.2. Power classification

The PoE Power Class supported by ZN-S100V/ZN-S1000VE is Class 0. Table 1 shows IEEE 802.3af power classes.

Class	Usage	Minimum Power Levels Output at the PSE	Maximum Power Levels at the Powered Device
0	Default	15.4W	0.44 to 12.95W
1	Optional	4.0W	0.44 to 3.84W
2	Optional	7.0W	3.84 to 6.49W
3	Optional	15.4W	6.49 to 12.95W
4	Reserved for Future Use	Treat as Class 0	Reserved for Future Use

Table 1. IEEE 802.3af PSE and Powered Device Power Classifications

6. Electrical characteristics

6.1. Operating conditions

	Parameters	Min	Typical	Max	Units
Video input range	Peak to peak amplitude	0.25	1	2	V
	Sync amplitude	72	286	572	mV
	Horizontal lock range	-	-	± 7	% of line length
	Color sub-carrier Lock-in range	-	-	± 800	Hz
Audio input range		TBD	TBD	TBD	Vp-p
Ambient Operating Temperature		0	-	50	ºC
Ambient Operating Humidity		TBD	-	TBD	%
D/O (isolated)	On-state current	-	-	TBD	mA
	Operating Voltage	-	-	TBD	VDC

Table 2. Operating conditions

6.2. Power consumption

Item	ZN-S100V	ZN-S1000VE
Input Voltage	12 V	12 V
Current	TBD	TBD
Consumption	TBD	TBD

Table 3. Power consumption

> ⚠️ **CAUTION**
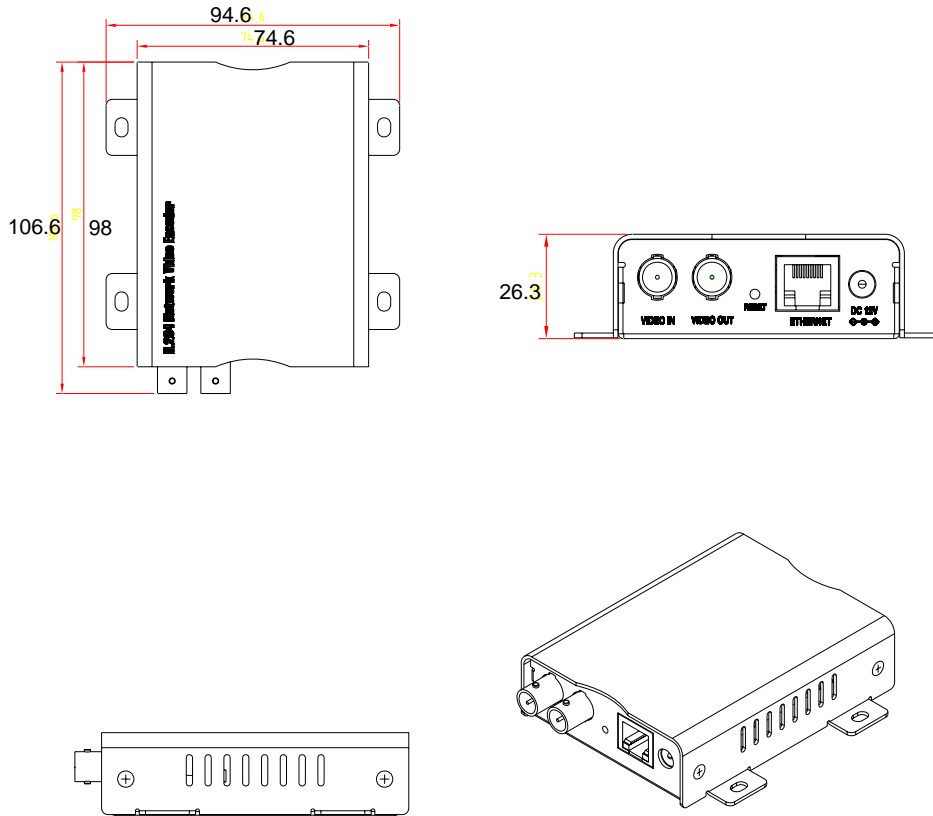> Overvoltage and overcurrent will cause a severe damage to the device or even a fire.

7. Dimensions

ZN-S100V

Unit : mm

ZN-S1000VE

H.264 Network Video Encoder

103.4

141.4

121.7

37.7

1CH Encoder

Status

Data

Vin

SD

Vout

Ain

DI

RS-232

1 ÷ ÷ 1 2 ÷ Rx Tx ÷

DC12V

USB

Ethernet

1 ÷ ÷ 1 2 C + − ÷

Aout

DO

RS-485

Reset

Unit : mm

GANZ